UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,712	10/27/2000	Hong Heather Yu	9432-000122	5774

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EXAMINER
REVAK, CHRISTOPHER A

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/698,712	YU ET AL.
	Examiner	Art Unit	
	Christopher A. Revak	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 January 2005</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-25</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____.
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5)☐ Notice of Informal Patent Application (PTO-152)
     Paper No(s)/Mail Date _____.   6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed January 25, 2004 have been fully considered but they

are not persuasive.

The applicant has argued that the publication of the reference by Wu et al is not

in fact September 1999, but should be November 1999 and accordingly, disqualified as

being rejected under 35 U.S.C. 102(b). The applicant's statements of facts are

insufficient evidence to overcome the prior art by showing a later date for the teachings

of Wu et al. The applicant's statements are tantamount to hearsay and would require

affidavits to establish the facts on record. The applicant is required to provide a written

affidavit attesting to the statements of facts by inventor Hong Heather Yu why the

Information Disclosure Statement filed on February 19, 2004 lists the reference by Wu

et al as a publication date of September 1999 and then changing it to November 1999 in

the after final response, and to explain why the date of the handouts show a publication

date of September 20, 1999 versus the actual publication date of November 1999 as

indicated by the inventor. The applicant is additionally required to submit a written

affidavit from the business, or organization, responsible for the conference and to

discuss what procedure is taken to receiving documents for the conferences, how they

publish, the length of time for reception to publishing including average delays until

made public, and for them to indicate the critical date of being either September 1999 or

November 1999. The examiner has found a resume from co-author Min Wu listing the

reference in question as a publication date of September 1999, please see page CV-6.

The examiner has indicated the above to the applicant in the Advisory Action mailed on

January 4, 2005 and the applicant has not provided the necessary information in the

form of affidavits in order to disqualify the publication entitled "Multi-level Data Hiding for

Digital Image and Video" as having a publication date of November 1999, instead of

September 1999 as the applicant has originally indicated on the Information Disclosure

Statement filed on March 26, 2001 and as discovered by the examiner in the resume of

Min Wu additionally indicating the publication date of September 1999.

The slides submitted as Exhibit C appear to disclose of extracting signature

information and embedding the signature information, however, it is not clear where in

the slides it is enabled for selecting a masking block and embedding signature

information in the masking block. The slides are additionally not enabled for detecting

error conditions and using signature information to repair the errors.

2.   In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., "data recovery and error concealment using data hiding" and "data hiding

techniques to recover or repair the missing or damaged data chunks") are not recited in

the rejected independent claims 1,19, and 25. Although the claims are interpreted in

light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3.   Applicant's arguments with respect to independent claims 1,19, and 25 have

been fully considered but they are not persuasive.

It is argued by the applicant that Wu et al fails to disclose embedding signature

information extracted from one portion of a document in another portion of the

document, but Wu et al rather discloses embedding of secondary information. The

examiner respectfully disagrees. Wu et al discloses of using the signal X and

partitioning it into subsets wherein secondary data is mapped, i.e. embedded, into

values consisting of 1's and 0's which is unique information, see section 2.1.

4.   Applicant's arguments with respect to independent claims 15 and 24 have been

fully considered but they are not persuasive.

It is argued by the applicant that Wu et al fails to disclose embedding signature

information extracted from one portion of a document in another portion of the

document, but Wu et al rather discloses embedding of secondary information. The

examiner respectfully disagrees. Wu et al discloses of using the signal X and

partitioning it into subsets wherein secondary data is mapped, i.e. embedded, into

values consisting of 1's and 0's which is unique information, see section 2.1.

The applicant has argued that Chan does not teach embedding signature

information extracted from one part of a document in another part of the document. The

examiner notes that the teachings of Chan are not relied upon for these limitations. In

response to applicant's arguments against the references individually, one cannot show

nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 25 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. It is recited of a computer data signal

embodied in a carrier wave that is considered non-statutory and is software alone and

of itself. It is suggested by the examiner that the claims to recite that the computer data

is to be processed by a computer.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7.   Claims 1-9, 11-14, 19-21, 23, and 25 are rejected under 35 U.S.C. 102(b) as

being anticipated by Wu et al.

As per claim 1, Wu teaches partitioning the digital data into a plurality of

blocks:

extracting signature information from a first one of said blocks; selecting a second one of said blocks as a masking block; embedding said signature information of said first block in said masking block (see section 2.1).

As per claim 2, Wu teaches repeating said extracting, selecting and embedding steps for each of said plurality of blocks (section 2.1).

As per claim 3, Wu teaches repeating said extracting, selecting and embedding steps for each of said plurality of blocks such that each of said plurality of blocks serves as a masking block for one and only one other block (section 2.2.4).

As per claims 4, Wu teaches selecting step is performed by scanning said plurality of blocks using a predefined scanning pattern (section 2.2.3).

As per claim 5, Wu teaches expressing said plurality of blocks in a predetermined column and row format and wherein said scanning pattern traverses a diagonal zig-zag pattern across said column and row format (see figure 4).

As per claim 6, Wu teaches said extracted signature information is content-associative signature information (sections 2.2.1 and 2.3.1).

As per claim 7, Wu teaches said extracted signature information is generated by expressing said data in the frequency domain having corresponding frequency coefficients and by using a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 8, Wu teaches embedding step is performed so as to minimize the perceptibility of said signature information within said masking block (section 2.2.2).

As per claim 9, Wu teaches embedding step is performed using a data hiding technique in which the least significant bits of the masking block are altered based on the signature information (section 2.2.2).

As per claim 11, Wu teaches step of selecting a masking block is performed using a circular selection strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block (column 2.2.4).

As per claim 12, Wu teaches the step of selecting a masking block is performed using a random selection strategy whereby said first block and said second block are selected by a random shuffle algorithm (section 2.2.4).

As per claim 13, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby the amount of signature information stored in a given block is controlled based on the data content of that block (section 2.3.1).

As per claim 14, Wu teaches embedding step is performed using a nonlinear embedding strategy whereby said plurality of blocks are classified according to a predetermined set of block types and wherein the amount of signature information stored in a given block is controlled based on the given block's block type (sections 2.2.4 and 2.3.1).

As per claim 19, Wu teaches a memory for partitioning said digital data into a plurality of blocks including a first block and a second block; a processor for extracting signature information from a first one of said 5 blocks and embedding said signature

information in said second block (see sections 1.2.1, and the results which were simulated on a computer),

As per claim 20, Wu teaches said processor employs a data hiding algorithm to embed said signature information into said second block (section 2.1).

As per claim 21, Wu teaches memory stores said digital data expressed in the frequency domain with corresponding frequency coefficients and wherein said data processor includes an extraction algorithm that uses a selected portion of said frequency coefficients to generate said signature information (section 2.2.2).

As per claim 23, Wu teaches said processor accesses said memory to define said first and second blocks in a circular strategy whereby said first block both provides signature information to and receives signature information from a linked list of blocks containing at least one third block all defined in said memory (section 2.2.4).

As per claim 25, Wu teaches a partition of digital data defining a plurality of blocks; a signature information component extracted from a first one of said blocks and embedded in a second one of said blocks (section 2.1).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 10,15-18,22, and 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Wu et al in view of Chan.

As per claims 10 and 22, Wu fails to explicitly teach the step of selecting a

masking block is performed by expressing said plurality of blocks geometrically and by

maximizing the distance between said first and second blocks. Chan does teach the

step of selecting a masking block is performed by expressing said plurality of blocks

geometrically and by maximizing the distance between said first and second blocks (see

section II. A, Block Shuffling Algorithm). Chan teaches that maximizing the distance

between the first and second block decreases the likelihood of both block having an

error. Therefore, this increases the chance to repair the error of a block. In view of this,

it would have been obvious to one of ordinary skill in the art at the time the invention

was made to employ the teaching of Chan within the system of Wu because it would

increase the possibility of error recovery. One skilled in the art would have been

motivated to generate the claimed invention with a reasonable expectation of success.

Claims 15 and 24, Wu teaches of partitioning the digital data into a plurality of

blocks, extracting signature information from a first one of said blocks; selecting a

second one of said blocks as a masking block, and embedding said signature

information of said first block in said masking block (see section 2.1). Wu et al

additionally discloses of encoding information (section 2.1) and it is inherent that the

teachings of Wu et al include a processor that has processor memory containing digital

data since it is essential for a processor to access memory in order to read and interpret

the stored instructions so that they can be processed in order to perform multi-level data

hiding for digital images. The teachings of Wu et al fail to teach examining said one of said blocks to detect if an error condition exists in that block, upon detection of an error condition, accessing said second block to retrieve the signature information of said first block, and using said retrieved signature information to make repairs to said first block. Chan teaches examining said one of said blocks to detect if an error condition exists in that block, upon detection of an error condition, accessing said second block to retrieve the signature information of said first block, and using said retrieved signature information to make repairs to said first block (see Introduction section, 1.). It would be advantageous to be able to recover the signature information in case of an error in transmission so that ownership can still be proved. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the teaching of Chan within the system of Wu because it would allow the signatory information to be recovered even if some data is loss during transmission. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

As per claim 16, Chan teaches comprising identifying additional blocks in a neighborhood associated with said first block and using said additional blocks along with said retrieved signature information to make repairs to said first block (see section ILD, Error Concealment).

As per claim 17, Chan teaches a multidirectional interpolation process is performed on said additional blocks to make repairs to said first block (see section II.D, Error Concealment).

As per claim 18, Wu fails to teach identifying additional blocks in a neighborhood

associated with said first block; extracting edge signature information from said

additional blocks; and using said extracted edge information in generating said

signature information. Chan teaches identifying additional blocks in a neighborhood

associated with said first block; extracting edge signature information from said

additional blocks; and using said extracted edge information in generating said

signature information (see section ILD, Error Concealment). Chan teaches that

knowledge of edge information can help minimize the blocking effects after error

concealment, Therefore, the likelihood of recovering the hidden data is greater. In view

of this, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to employ the teaching of Chan within the system of Wu because it

would allow the signatory information to be recovered even if some data is loss during

transmission. One skilled in the art would have been motivated to generate the claimed

invention with a reasonable expectation of success.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Hoshi et al, U.S. Patent 4,903,124 discloses of dividing a signal into a plurality of

blocks, using reference value to form coded data in units of blocks, and vector

quantizing the blocks to form second coded data.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Christopher A. Revak whose telephone number is 571-

272-3794. The examiner can normally be reached on Monday-Friday, 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Revak
AU 2131

CR

May 10, 2005